

Notice of Allowability

Application No.

09/629,213

Examiner

Michael Kornakov

Applicant(s)

CHEN ET AL.

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/09/04.
2. ☒ The allowed claim(s) is/are 11-16, 18 and 19.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 11/22/2004.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. S. Koffs, esq., on 11/17/2004.

The application has been amended as follows:

In the specification:

on page 8, line 8 replace the number "33" after the words "by the holes making up the two rows 32," with the number ---31---

on page 8, line 15 replace the number "61" after the words "the cassette" with the number ---12---

on page 8, line 18 delete the number "59" after the words "bubbles created by escaping nitrogen gas"

on page 8, line 18 after the words "egressing holes" insert the number ---33---

In claims:

Replace claim 11 as follows

---A method for removing coatings from a plurality of substrates comprising the steps of: providing a substrate carrier containing a plurality of substrates; providing a tank containing a liquid chemical; placing a gas distribution plate on a bottom of said tank, said gas distribution plate having a groove for guiding a flexible tubing; drilling a linear

array of holes in said flexible tubing; connecting said flexible tubing to a pressure regulated gas supply; positioning said substrate carrier on said gas distribution plate so that a linear array of gas bubbles flowing upwards scrub surfaces between each substrate---

Replace claim 12 as follows

---The method according to claim 11 wherein a plurality of lines of gas bubbles forms patterns that correspond to each substrate contained in said substrate carrier---

Replace claim 14 as follows

---The method according to claim 11 wherein a gas distribution plate and a flexible tubing are each compatible with aggressive chemicals used for removing residues in sidewalls that are coated with an organic material---

Replace claim 15 as follows

--- A method for stripping photoresist from a plurality of semiconductor wafers comprising the steps of: providing a wafer cassette containing a plurality of wafers; providing a tank containing a photoresist stripping chemical; providing a gas distribution plate and placing it on a bottom of said tank, said gas distribution plate having a groove for guiding a flexible tubing; drilling a linear array of holes in said guided flexible tubing; connecting said flexible tubing to a pressure regulated gas supply; positioning said wafer cassette on said gas distribution plate so that a linear array of gas bubbles emanating from holes drilled in said flexible tubing flow upwards, therein scrubbing the surfaces of each wafer---

Replace claim 16 as follows

---The method according to claim 15 wherein said gas distribution plate having a gas distribution pattern for generating rows of gas bubbles, each row corresponding to a wafer position in said wafer cassette---

Replace claim 18 as follows

--- The method according to claim 15 wherein a gas distribution plate and a flexible tubing are both compatible with aggressive chemicals for removing residues---

Response to Applicants' amendment

2. All previous rejections and objections have been overcome by the amendment, filed 09/09/2004, in combination with the Examiner's amendment and the said objections and rejections are withdrawn.

Drawings

3. The drawing, Fig. 2, is objected to under 37 CFR 1.83(a) because it fails to properly show the gas bubble, as described in the specification on page 6, line 3 and the top surface of gas distributing plate, as described in the specification on page 7, line 6. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Allowable Claims

4. Claims 11-16, 18 and 19 are allowable over the prior art of record.

Reasons for Allowance

5. The following is an examiner's statement of reasons for allowance: The closest prior art of record is U.S. 5,904,156 to Advocate, Jr. et al. Advocate et al. teach a method for removing a photoresist film from the vicinity of semiconductor silicon device structures, interposed by metal stack. The method of Advocate comprises providing a false bottom with gas fan; which is placed into strip tank with stripping solution; providing pressurized and flow regulated tube for the supply of inert gas, preferably nitrogen, to gas fan, providing a wafer boat; immersing the said wafer boat with wafers

into the stripping solution and positioning it on the false bottom; generating the pressurized gas flow, which causes aggressive bubbling in the solution around the wafers and provides the scrubbing of wafers surfaces. The teaching of Advocate et al. does not anticipate or suggest fairly the step of providing the gas distribution plate which has a groove for guiding a flexible tubing and the step of drilling a linear array of holes in said guided flexible tubing. Upon further search no other prior art that anticipates or suggests fairly the indicated limitations has been located as of the date of this office action. Therefore, claims 11-16, 18 and 19 are allowed over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (571) 272-1303. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Kornakov

Michael Kornakov
Primary Examiner
Art Unit 1746

11/22/2004

MICHAEL KORNAKOV
PRIMARY EXAMINER